An Overview of "Eco-Labels" and Product Certifications for Computers, Monitors, and Printers

Introduction

This report provides a summary explaining existing eco-labels and certification systems for computers and peripherals. We attempted to determine the extent to which any are available on products for sale in the US, and whether any incorporate life cycle assessment approaches or life-cycle thinking. Interested purchasers can ask suppliers to provide certified products or equivalents, and can check with the labeling and certification entities for additional details and, in some cases, lists of certified products.

Summary of Eco-Labels and Certification Programs

Scientific Certification Systems

http://www.ecma.ch

SCS certifies selected "Environmentally Preferable Products, Services, and Technologies." It applies to many products besides electronics. For any product, service or technology, the SCS determination of environmental preferability starts by assessing its environmental impacts at each life-cycle stage, and SCS uses a combination of techniques to complete this assessment. These techniques include life-cycle impact assessment, supplemented by information from other scientific studies such as Environmental Impact Assessment, Risk Assessment, and Environmental Resource-based studies, and knowledge about "best available" technologies and practices in a given industry.

Examples of attributes that have been certified for various products include

- Recycled content
- Recovered content
- Salvaged wood from urban sources
- Biodegradability
- No ozone depleting chemicals
- No VOCs / Low VOCs
- No added formaldehyde emissions
- Organic ingredients
- Poison-free/alternative to poison
- Water efficient

Only one attribute, ozone-depleting chemicals, has been applied to electronics so far. Currently, about 24 electronics products have been certified as containing no ozone-depleting chemicals. Of these, only a few are monitors, printed circuit boards, and a few computer units of Taiwanese manufacture. (See http://www.scs1.com/cgi-bin/scs-certclaims.cgi?function=search&producttype=Electronics.)

International Labels or Certification Programs applicable to products for sale in the US

ECMA

http://www.ecma.ch

The European Computer Manufacturers Association (ECMA) is an international, industry association founded in 1961 and dedicated to the standardization of information and communication systems. Members include major computer software and hardware manufacturers (Alcatel, Ericsson, Lucent Technologies, OKI Europe Ltd, Siemens, Apple, Fujitsu/ICL, Microsoft, Openwave, Sony, Avaya, Hewlett-Packard, NCR, Panasonic, Sun, Canon, Hitachi, NEC, Philips, Tenovis, Compaq, IBM, Netscape, Pioneer Electric, Toshiba, Dell, Intel, Network Appliance, Ricoh, Xerox). The US actively participates in ECMA.

ECMA's environmental efforts reside primarily with Technical Committee 38, Product-Related Environmental Attributes. The scope of TC 38 is, according to their web site, "To identify and describe the environmental attributes related to ICT (Information and Communication Technology) and CE (Consumer Electronics) products, *during their entire life cycle, from conception to end-of-life treatment*." Active members of TC 38 include representatives from major computer manufacturers, including Hewlett Packard, NEC, Dell, Compaq, and IBM (US rep).

Publications include Technical Report TR/70, *Product-Related Environmental Attributes* (can be downloaded from the web site). TR/70 is a voluntary declaration form ("Eco-declaration"), which incorporates the following criteria (SITO declaration (see below) now includes ECMA TR/70):

- Product information/description (product and manufacturer identification)
- Extension of product lifetime (repair, warranty, upgradability/extendibility)
- Power consumption in several modes
- Radio frequency emissions (EMC)
- ELF/VLF emissions (only visual display units)
- Acoustical noise emissions
- Chemical emissions*
- Materials (declaration of not used suspiciously materials)
- Disassembly (declaration of design features supporting easy disassembly)
- Batteries (types, weight, disposal)
- Product packaging (types, weight, take-back)
- Take-back information (for product and consumables)
- Documentation (paper type and bleaching method)

Covered products include camcorders, copiers, printers, stereos, mobile phones, monitors, notebooks, PCs, PDAs, servers, single use cameras (SUCs), TVs (CRTs), and VCRs.

TCO
www.tcodevelopment.com

The Swedish Confederation of Professional Employees (TCO) is an environmentally labeling scheme and authority for TCO1992, TCO'95, and TCO'99 (95 being phased out and replaced by 99). The label addresses ergonomics, emissions (radiation and energy use and noise), and several other environmental attributes for computers, monitors, and printers. TCO has about 50% market penetration world wide, 100% in northern Europe, and about 35% in US. According to a US rep for TCO, the program is strongest for monitors, and there are too few qualifying computers and printers to be useful in the US. All qualifying products tend to be "high end" products.

TCO has looked at life cycle analysis, but their main focus has been than on safe environments for workers. They try to work and harmonize with other standards bodies/organizations (such as ISO, EnergyStar) on other environmental aspects, such as energy and life cycle.

Canadian Labels or Certification Programs

(Certified products or equivalents may be available in the US; ask the manufacturers and distributors.)

Environmental Choice

http://www.environmentalchoice.com/index_main.cfm

Established in 1988, Canada's "Environmental Choice" Eco-Logo program helps consumers identify products and services that are less harmful to the environment. A product or service may be certified because it is made or offered in a way that improves energy efficiency, reduces hazardous by-products, uses recycled materials or because the product itself can be reused. Guidelines are developed in consultation with industry, environmental groups, universities and independent technical and scientific advisors. According to information currently on the Internet, the label does not include a category for either computers or monitors, but it does for printers. Qualifying printer manufacturers at this time include Canon Canada Inc., Lexmark Canada Inc., Sharp Electronics of Canada Ltd, and Xerox Canada Ltd.

European Labels or Certification Programs

(Certified products or equivalents may be available in the US; ask the manufacturers and distributors.)

Blue Angel

http://www.blauer-engel.de/Englisch/

The world's first eco-labeling program, Blue Angel, was created in 1977 to promote environmentally sound products, relative to others in the same group categories. This eco-label relies on information and voluntary cooperation, as well as on the motivation and the willingness of each individual to make a contribution towards environmental protection. The criteria for awarding the Blue Angel includes: the efficient use of fossil fuels, alternative products with less of an impact on the climate, reduction of greenhouse gas emission, and conservation of resources. Once approved, eco-labeled products are reviewed every two or three years to reflect state-of-the-art developments in ecological technology and product design.

Germany's Blue Angel certification for computers is primarily concerned with waste avoidance and reuse potential. According to the web site, "Pursuance of these aims helps to prevent possible entries of pollutants into the environment, protect resources and save disposal site space." As a result, their Environmental Label is "awarded to those products which combine a potential longevity of the system and its components with a recyclable design and the opportunity to reuse and recycle used products or product components. In addition, the use of environmentally harmful substances shall be avoided wherever possible." The Basic Criteria apply to components of workstation computers, including workstations consisting of controller (console), keyboard and monitor. Most products that qualify appear to be of strictly European make and/or model.

Nordic Swan

http://www.ecolabel.no

In November 1989, the Nordic Council of Ministers adopted a measure to implement a voluntary, positive co-labeling scheme in the Nordic countries (Norway, Sweden, Finland, Iceland, and Denmark). The objective of this eco-labeling was to provide information to

consumers to enable them to select products that are the least harmful to the environment. Nordic Co-labeling follows the ISO 14024 standard: "Environmental labels and declarations - Guiding principles".

The criteria for co-labeling include requirements for the composition of the product, construction, materials, chemicals, marking of parts, waste disposal, recycling, energy consumption, noise level, ergonomics, electromagnetic fields and safety of use. The criteria have been fixed taking into account the environmental load during the whole life cycle of the product and the principles of the scheme for recyclable products (DFR - Design for Recycling).

SITO

http://www.itforetagen.se/ (in Swedish)

The SITO Eco-declaration for personal computers was a product of this Swedish industry organization's environmental group. The January 1997 version of the SITO eco-declaration (provided by SPU) is a detailed checklist/questionnaire that lists both voluntary standards and those required law. Many of the voluntary requirements come from Germany's Blue Angel 94 and/or Nordic SWAN 95 certifications. Attributes are in the area of "Ecologically adapted construction," "Batteries," "Noise characteristics," "Monitor characteristics/visual ergonomics, keyboard," "electrical safety," "Ecological recycling," "Packaging and documentation," "Energy consumption," and Environment- and Quality Management."

The web site is in Swedish, so we were unable to easily access any more information (for example updates or applicability outside Sweden). However, information from the ECMA web site indicates that SITO is adopting ECMA's TR70 declaration.

Eco-label (EU)

http://europa.eu.int/comm/environment/ecolabel/award.htm

The EU eco-labeling program was launched throughout the European Community in 1993 to encourage the manufacture of less environmentally damaging products. The European Union's Eco-label, a flower with the EU's star symbol, is awarded to products that have passed a life cycle analysis. On 26 February 1999 the Commission adopted the criteria for Personal Computers. These criteria are valid as of 1 March 1999 until March 2002 and producers can apply for the eco-label.

The product group definition is a commercially available stationary computers consisting of a monitor, system unit, and keyboard.

The criteria focus on:

- energy consumption
- life-time extension
- take-back and recycling
- user instructions.

Other Programs of Interest

EPA

http://www.epa.gov

EnergyStar—See http://www.epa.gov/nrgystar/purchasing/6a_c&m.html#pl_cm for information about EnergyStar labeled computers, monitors, and printers, including criteria and lists of qualifying products.

Design for the Environment (DfE)—The Computer Display Project (http://www.epa.gov/opptintr/dfe/compdisp/compdisp.html) is assessing the life cycle impacts of flat panel displays (FPDs) and conventional cathode ray tube monitors (CRTs) by combining Cleaner Technologies Substitutes Assessment (CTSA) and life-cycle assessment (LCA) approaches. Developed under the DfE program, CTSAs evaluate and compare substitute processes, products, or technologies and generate data that allow businesses to make environmentally informed choices. Human and ecological risk, energy and resource use, performance, and costs are evaluated in a CTSA. Other areas of future investigation include life cycle assessments/comparisons of leaded and un-leaded wireboards.

Environmentally Preferable Purchasing Database—The EPA Office of Pollution Prevention and Toxics, Environmentally Preferable Purchasing web site ((http://yosemite1.epa.gov/oppt/eppstand2.nsf/Pages/DisplayAisle.html?Open&Computer% 20Store&Computers) provides a summary of and links to EPA (e.g., EnergyStar) and other programs related to environmental preferable purchasing of computers and related equipment. This includes summary of voluntary and mandatory standards and guidelines with vendor lists, where available for EnergyStar, the State of Massachusetts, SCS, Blue Angel, EU, TCO, Nordic Swan, SITO, and the UK Center for Sustainable Design.

Silicon Valley Toxics Coalition (SVTC)

http://www.svtc.org

The Clean Computer Campaign, a project of the Silicon Valley Toxics Coalition, researched major computer corporations operating in the USA to see how responsible these corporations were to their consumers regarding three issues:

- the use of hazardous material use in computers
- the ability to upgrade one's computer
- the ability to return old computers back to the producer for safe reuse and recycling.

Criteria and top scores are:

- *Overall*: Out of a possible 87 points: Canon (Japan) had 55 points (63%)
- *Product Stewardship*: 24 total points: Fujitsu (Japan) had 18 points (75%)
- *Water*: 15 total points: Canon (Japan), NEC (Japan), Phillips (Europe) and ST Microelectronics (Europe) all scored 10 points (66.7%)
- *Hazardous materials*: 12 total points: Toshiba (Japan) scored 10 points (83%)
- *Energy:* 12 total points: Canon, Mitsubishi and Sony (all Japanese companies) all had 100%
- *Suppliers*: 6 total points: Sanyo (Japan) Hewlett-Packard (USA) tied at 5 points each (83%)
- *Occupational Health*: 6 total points: AMD, Compaq, Intel, Lucent, Motorola, National, Texas Instruments (all US companies) and Sony and NEC (Japanese) scored 2 points each (33.3%)
- *International:* 9 points: Canon (Japan) 6 points (66.7%)
- *Ease to access:* 3 total points: Canon and Mitsubishi (Japan); ST Microelectronics (Europe); Agilent (US) scored the maximum 3 points for 100%

The complete report is at http://www.svtc.org/cleancc/pubs/99report.htm.

Electronics Industries Alliance (EIA)
www.eia.org

EIA has been active in the area of electronics recycling. One initiative, the Consumer Education Initiative (CEI), encourages consumers to reuse and recycle used electronics. As part of the CEI, EIA launched a website, www.eiae.org, that directs users to local charities, schools, neighborhood and community de-manufacturers and other local and national recycling programs that collect used electronics. Most recently, EIA in cooperation with contributing manufacturers Canon, Hewlett Packard, JVC, Kodak, Nokia, Panasonic, Philips Electronics, Sharp, Sony, and Thomson, announced the development of an innovative electronics collection and recycling pilot project. Scheduled to launch in October 2001, the pilot will test several different models of electronics collection and recycling. From the pilot, participants hope to generate data that will help guide the development of a cost effective and efficient long-term electronics recycling program.

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